

CLAIMS

- 5 1. A regenerative oxidizer, for removal of pollutants from waste gas comprising :
- an elongated housing having an inlet duct and an outlet duct;
- a heat media bed disposed circumferentially within the housing;
- a combustion chamber equipped with a burner or electric heater;
- a distribution cylinder disposed in the center of the housing;
- a separator which is in contact with the heat media bed and the lower section
- 10 isolated by the inlet chamber, and
- a rotor disposed within the distribution cylinder.
2. A regenerative oxidizer as in claim 1 wherein a catalyst bed is disposed circumferentially above the heat media bed.
3. A regenerative oxidizer as in claim 1 wherein the separator consists of a
- 15 cylindrical outer wall which fits to the inner wall of the housing and is divided into multiple cells by isolating plates.
4. A regenerative oxidizer as in claim 1 wherein the rotor consists of a rotor cylinder having multiple distribution wings, a rotor cover surrounding the distribution wings and an outlet hole connected to the outlet duct.
- 20 5. A regenerative oxidizer as in claim 4 wherein the distribution wings, having an upper and lower outlet hole, are disposed with equal spacing in the upper section of the rotor along the circumference and approximately one-half of of the said distribution wings are covered by a rotor cover.
6. A regenerative oxidizer as in claim 1 wherein a separate purge section is

disposed within the rotor between the influent distribution zone and the effluent zone.

7. A regenerative oxidizer as in claim 1 wherein a vertical partition is disposed within the rotor on the other side of a purge section.
- 5 8. A regenerative oxidizer as in claim 1 wherein the gap between the surface of the separator's inner wall and the distribution wings are sealed by physical, pneumatic or hydraulic means.
9. A regenerative oxidizer as in claim 8 wherein the sealing means are Teflon, spring devices or O-rings.
- 10 10. A method for removal of pollutants from waste gases comprising the steps of :
 - (a) providing a regenerative oxidizer having an elongated housing with an inlet duct and an outlet duct; a heat media bed disposed circumferentially within the housing; a combustion chamber equipped with a burner or electric heater; a distribution cylinder disposed in the center of the housing; a separator which is in contact with the heat media bed and the lower section isolated by the inlet chamber; and a rotor disposed within the distribution cylinder;
 - 15 (b) causing incoming waste gases to flow via inlet duct into rotor and are distributed by distribution wings to separator;
 - 20 (c) causing the waste gases to flow upwardly through the heat media bed and be treated in the combustion chamber;
 - (d) causing the purified gases to flow downwardly through heat media bed;
 - (e) causing the purified gases pass through the rotor and to the inner section of rotor cylinder;

(f) causing the purified gases pass through lower outlet hole of rotor and discharge via outlet duct into the atmosphere.

11. A method for removal of pollutants from waste gases as in claim 10 wherein a catalyst bed is disposed circumferentially above the heat media bed.

5 12. A method for removal of pollutants from waste gases as in claim 10 wherein a separate purge section is disposed within the rotor between the influent distribution zone and the effluent zone.

13. A method for removal of pollutants from waste gases as in claim 10 wherein a vertical partition section is disposed in the opposite side of the purge section within the rotor.